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10/531,278	04/13/2005	Stephan Wursthorn	R.304144	5078
2119	7590	12/13/2007	EXAMINER	
RONALD E. GREIGG			DUONG, THANH P	
GREIGG & GREIGG P.L.L.C.			ART UNIT	
1423 POWHATAN STREET, UNIT ONE			PAPER NUMBER	
ALEXANDRIA, VA 22314			1797	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/531,278

Applicant(s)

WURSTHORN ET AL.

Examiner

Tom P. Duong

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 18-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-37 is/are rejected.
- 7) ☒ Claim(s) 36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

*Tom Duong*  
12/7/07

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 4/13/05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because of the following informalities:

In section 0000.4, line 2, insert --and claims the priority of German application No. 102 47 946.1, filed Oct. 15, 2002, the disclosure of which are expressly incorporated by reference herein-- after "2003".

Appropriate correction is required.

### ***Claim Objections***

Claim 36 is objected to because of the following informalities:

The term "filter" should be replaced with --delimiting device--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 18-31, 33-34, and 37 are rejected under 35 U.S.C. 102(b) as being an anticipated by Hammond, Jr. et al. (4,390,355).

Regarding claim 18, Hammond, Jr. et al. '355 discloses an exhaust treatment apparatus (Fig. 4) comprising a flow permeable body (Fig. 4) through which the exhaust of an internal combustion engine (Fig. 1) can flow, the body having flow regions with different flow resistances (increasing wall thickness in X/L, Fig. 4), including flow regions (26, 27) that are separate from one another and are each delimited by a delimiting device (ceramic power coating 40 on walls 24), each flow region (26,27) having at least one inflow opening (26) that the exhaust is able to act on and the different flow resistances in the regions (ceramic coating to increase wall thickness in X/L, Fig. 4) being produced by differently embodied delimiting devices.

Regarding claim 19, Hammond, Jr. et al. discloses the exhaust treatment the delimiting devices (Fig. 4) are permeable (porous wall) to the exhaust and can retain soot particles contained in the exhaust (Col. 2, lines 35-39 and Col. 6, lines 35-42)

Regarding claims 20, Hammond, Jr. et al. discloses the permeability of the delimiting devices varies (decreasing wall porosity X/L and increasing wall thickness X/L direction, Col. 4, lines 45-55).

Regarding claim 21, Hammond, Jr. et al. discloses the different permeabilities of the delimiting devices are at least partially determined by correspondingly selected thicknesses of the delimiting devices (decreasing wall porosity X/L and increasing wall thickness X/L direction, Col. 4, lines 45-55).

Regarding claim 22, Hammond, Jr. et al. discloses the delimiting devices each comprise a wall and a coating (ceramic power coating 40) whose thickness varies at least partially covering this wall (increasing wall thickness X/L direction, Col. 4, lines 45-55).

Regarding claims 23 and 24, Hammond, Jr. et al. discloses the permeability (pores) of at least one delimiting device in a region of the delimiting device oriented toward the inflow opening differs from the permeability of the delimiting device in a region oriented away from the inflow opening (decreasing wall porosity X/L direction; Col. 4, lines 45-48).

Regarding claims 25 and 26, Hammond, Jr. et al. discloses the permeabilities of at least two delimiting devices differ from each other (ceramic power coating 40 increasing wall thickness on each side within the wall).

Regarding claims 27 and 28, Hammond, Jr. et al. discloses the delimiting devices are at least partially comprised of porous material (ceramic powder) and the different permeabilities of the delimiting devices are at least partially determined by correspondingly selected pore densities and/or pore sizes in the regions (decreasing wall porosity in X/L direction, Col. 4, lines 45-48).

Regarding claim 29, Hammond, Jr. et al. discloses the permeabilities of at least two delimiting devices in regions close to the inflow openings and/or in regions remote from the inflow openings differ from each other (decreasing wall porosity X/L and increasing wall thickness X/L direction, Col. 4, lines 45-55).

Regarding claim 30, Hammond, Jr. et al. discloses the flow regions have cross-sectional areas perpendicular to the flow direction of the exhaust and the delimiting devices are embodied differently so that the geometric areas of the cross-sectional areas in the regions differ from one another (upstream region X has larger cross-sectional area than downstream region X, Fig. 4).

Regarding claim 31, Hammond, Jr. et al. shows a continuous transition between the regions of different flow resistances (upstream region X has larger cross-sectional area than downstream region X, Fig. 4).

Regarding claim 33, Hammond, Jr. et al. discloses the flow-permeable body constitutes a particle filter (Col. 2, lines 35-39).

Regarding claim 34, Hammond, Jr. et al. discloses the delimiting devices are comprised of ceramic walls (Col. 2, lines 21-29).

Regarding claim 37, Hammond, Jr. et al. discloses the flow regions are disposed parallel to one another so that their inflow openings (26) are situated on one side of the body (Figs. 2 and 3).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammond, Jr. et al. '355 in view of WO 00/01463.

Regarding claim 35, Hammond, Jr. et al. '355 essentially discloses the delimiting devices of the claimed invention but is silent with respect to the use of metal meshes in the delimiting devices comprising metal meshes.

WO 00/01463 teaches that it is conventional to fabricate the soot filters from ceramic wire mesh, foam ceramic, and/or metal wire mesh to facilitate in removing soot from the exhaust gas other than wall flow filters (page 1, lines 5-15).

Thus, it would have been obvious in view of WO 00/01463 to one having ordinary skill in the art to fabricate the delimiting device of Hammond, Jr. et al. with metal mesh as disclosed by WO 00/01463 since it is known in the art to fabricate the exhaust treatment device made from a variety of materials including metal mesh.

Regarding claim 36, Hammond, Jr. et al. '355 essentially discloses the delimiting devices of the claimed invention but is silent with respect the filter is a sintered metal filter.

WO 00/01463 teaches that it is conventional to fabricate the exhaust treatment device from a variety of known filter materials including ceramics, metals, organic fibers, and silicon carbide (page 7, lines 1-11). WO 00/01463 further discloses that the filter can be formed from a sintered metallic material.

Thus, it would have been obvious in view of WO 00/01463 to one having ordinary skill in the art to fabricate the delimiting device of Hammond Jr. et al. from sintered

metallic material as taught by WO 00/01463 since the process of fabricating the filter from sintered metallic material is conventional in the art.

3. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hammond, Jr. et al. '355 in view of Prior Art Admission.

Regarding claim 32, Hammond, Jr. et al. essentially discloses the flow-permeable body of the claimed invention except the flow-permeable body is an oxidizing converter to reduce the NOx in the exhaust.

Prior Art Admission discloses that the channel of the ceramic honeycomb filter can be coated with a catalyst layer in order to facilitate the oxidation of nitrogen oxide to nitrogen dioxide (Applicant's specification in section 0004).

Thus, it would have been obvious in view of Prior Art Admission to one having ordinary skill in the art to provide a catalyst layer as taught by Prior Art Admission in the treatment device of Hammond, Jr. et al. in order to form an oxidizing converter which reduces the NOx in the exhaust gas.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom P. Duong whose telephone number is (571) 272-2794. The examiner can normally be reached on 8:00AM - 4:30PM (IFP).



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tom Duong  
December 7, 2007

